REMARKS

Claims 1-5, 7, 10 and 11 have been amended. Claim 6 has been canceled. New claims 12 and 13 have been added. Thus, claims 1-5 and 7-13 are presented for examination. Support for the amendment to claim 1 may be found in original claim 6. Support for new claim 12 may be found in the specification at the paragraph bridging pages 9-10, and at page 13, last paragraph. Support for new claim 13 may be found at the paragraph bridging pages 16 and 17, at page 17, second paragraph. Support for the recitation of "alkali-insoluble" in relation to the underlying film in amended claims 1, 10 and 11, and in new claim 12, may be found in the specification at page 22, last paragraph. Thus, no new matter has been added. Reconsideration and withdrawal of the present rejections in view of the amendments and comments presented herein are respectfully requested.

Rejections under 35 U.S.C. § 102(b)

Niikura et al. (US 6,106,994)

Claims 1, 2 and 6-9 were rejected under 35 U.S.C. § 102(b) as being anticipated by Niikura et al. (US 6,106,994). Niikura et al. disclose a positive photosensitive composition comprising an alkali-soluble resin and a diester (col. 6, lines 41-43). Niikura et al. discloses that the novolak resin is a component of a positive photosensitive composition which changes alkali solubility upon exposure, and the novolak resin itself is an alkali-soluble resin. (see column 6, lines 57-60).

In contrast, the present claims as amended recite that the photosensitive composition (i.e., underlying film) is alkali-insoluble. As described in the present specification at the paragraph bridging pages 22 and 23:

> the underlying film obtained by using the undercoating material of the present invention is insoluble in an alkali developing solution which is used to develop a photoresist layer after exposure, and can be etched with oxygen plasma, and is also excellent in embedding characteristics to the substrate. It is also excellent in etching resistance to a fluorocarbon-based gas, and generation of the sublimate can be suppressed when the film is formed. Furthermore, when using an excimer laser such as KrF or ArF excimer laser, or a light source having a wavelength shorter than that of the laser, the anti-reflection effect can also be exerted." (emphasis added).

Thus, the underlying material of the present invention is alkali-insoluble, and the alkali solubility is not changed upon exposure to radiation. Accordingly, the claims cannot be anticipated by this reference.

The present claims are also not rendered obvious by this reference. After a developing treatment, the underlying material of the present invention is etched for the first time using a resist pattern formed in the photoresist film as a mask. Thus, if the novolak resin-containing composition of Niikura was used for the underlying material of the presently claimed invention, the alkali solubility would change upon exposure and the composition would clearly not be suitable for the purpose of the present invention.

Saito et al. (US 2003/0064319)

Claims 1-6 were rejected as being anticipated by Saito et al. (US 2003/0064319). As discussed above, the underlying film obtained by using the undercoating material of the present invention is insoluble in an alkali developing solution which is used to develop a photoresist layer after exposure. Saito et al. disclose a negative photoresist composition for the formation of thick films, comprising (A) a novolak resin; (B) a plasticizer; (C) a crosslinking agent; and (D) an acid generator. In contrast to the alkali-insoluble underlying film recited in the present claims, the composition of Saito comprises novolak resins which "are preferably soluble in alkalis." (see Saito at paragraph [0022]).

Moreover, because the composition of Saito comprises a crosslinking agent and an acid generator, this composition exhibits changed alkali solubility upon exposure to radiation. Thus, the underlying material recited in the present claims, which forms an alkali-insoluble underlying film by thermal curing, and does not changed alkali solubility upon exposure to radiation, is clearly different that the present claims.

In view of the amendments and comments discussed above, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b).

Rejection under 35 U.S.C. §103(a)

Claims 10-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Schaedeli et al. (US 6,146,793) in view of Niikura et al. (US 6,106,994). The Examiner alleges that it would have been obvious to use the novolak resins free of low molecular weight fractions

as disclosed by Niikura et al. for the first undercoating (undercoat layer) of Schaedeli et al. in order to take advantage of the high thermostability of the novolak resin. However, as explained below, this combination of references would not render the present claims obvious.

Schaedeli et al. teach a process for lithographic treatment of a substrate using a multilayer technique in which the substrate is provided with a first coating of a film-forming aromatic polymer material and then suitably cured; a second coating containing a terpolymer and a substance that forms acid under the effect of actinic radiation of a wavelength of about 193 nm is introduced on this first coating. The coated substrate is then irradiated with radiation of a wavelength of 248-254 nm, or 193 nm, to which the photoacid generator is sensitive. The irradiated substrate is then subjected to heat treatment, the heat-treated irradiated substrate is treated with an aqueous alkaline developer solution until the irradiated regions of the second coating are removed; and the substrate is treated with an oxygen-containing plasma until the first coating of the places not covered by the second coating is completely removed. Schaedeli et al. also state that novolak resins, such as formaldehyde cresol or formaldehyde phenol novolaks, are preferable as a first coating (undercoat layer) (column 6, liens 31-36).

Present claim 10 recites, in part, "applying an undercoating material comprising at least a novolac resin which contains 1% by weight or less of low molecular weight components having a molecular weight of 500 or less on a substrate, and heating the undercoating material to form an underlying film." However, as described above, an underlying film containing a novolak resin is alkali-insoluble, and does not change alkali solubility upon exposure to radiation. In contrast, the novolak resin described by Niikura et al. is alkali-soluble, and the composition comprising this resin changes alkali solubility upon exposure to radiation. Niikura et al. disclose that novolak resins are used for their high thermostability when the novolak resin is used for a photoresist film.

In contrast to Niikura et al., the novolak resin in the invention of Claim 10 is used as an underlying film. When used in this manner the alkali-insoluble resin achieves the unexpected, advantageous effects of "improving resistance of the underlying film containing the resin to an organic solvent," and "less likely causing intermixing." These effects could not have been predicted based on the teachings of Schaedeli et al. or Niikura et al, either alone or in combination. Claim 11 is similar to claim 10, except that it recites a substrate thereby forming a laminate, and is patentable for the same reasons discussed above. These unexpected advantages

of the resulting underlying film would effectively rebut any *prima facie* case of obviousness if one were present.

In view of the amendments and comments presented above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a).

CONCLUSION

Applicants submit that all claims are in condition for allowance. However, if minor matters remain, the Examiner is invited to contact the undersigned at the telephone number provided below.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 3/10/08

By: _____

Neil S. Bartfeld, Ph.D.
Registration No. 39,901
Agent of Record
Customer No. 20,995
(619) 235-8550

4866646
021108